

**REMARKS**

Independent claims 1, 12 and 22 have been amended to define applicant's contribution with greater clarity. The dependent method claims have been amended, as appropriate, to cure possible antecedent problems, to define the steps in active, rather than passive terms and for clarity.

The dependent apparatus claims have been amended to assure infringement at the time the goods are sold, prior to being put into use.

Claim 1, as amended, is not anticipated by Schmandt. The Schmandt "Audio Hallway" article concerns a virtual environment produced by using synthesized spatialized sound sources.

The conceptual model Schmandt uses is a virtual "audio hallway" (Figure 3) having virtual rooms off it (alternately to the left and right). Each room can be entered through a corresponding doorway. Each virtual room concerns a particular story. Each story has associated with it a number of sound streams. When in the virtual hallway, a user wearing a headset and a head-tilt/turn detector hears a respective set of room sounds (called "braided audio") from the nearest doorways. The sounds seem to come from the direction of the doorways concerned. The braided audio coming from a doorway has sound streams relevant to the story associated with the room beyond the doorway. The user virtually moves up and down the hallway by tilting his head forwards or backwards. Such head movement adjusts the synthesized positions of the braided audio sounds so the user thinks he is moving along the hallway. By stopping next to a doorway and tilting his head to the appropriate side, the user thinks he is passing through the doorway into the virtual room. On entering the virtual room, the braided audio disappears and is replaced by a set of angularly spaced sound sources (Figure 5), only some of which are active at any one time. The user changes which sound sources are active by turning his head. Only the

sound sources nearest to the facing direction of the user are active.

Schmandt selects sounds for muting in three ways: viz.

- (1) In the hallway, only the braided audio streams of the nearest doorways are audible. As the user moves along the hallway to approach and then pass a doorway, the braided audio stream of that doorway is first un-muted and then muted again; see page 166, right-hand column.
- (2) The braided audio stream associated with a room has several sounds that are cyclically un-muted in turn as depicted in Figure 2. The sounds of a braided audio stream are rendered as a single sound source – that is, they all appear to emanate from the same position (the position of the doorway concerned).
- (3) When inside a room, only some of the sound sources are heard according to the current facing direction of the user (Figures 5 and 6).

Claim 1 has been rejected under 35 USC 102 based on the third of the above selective muting methods. However, this selective muting method does not “**automatically and cyclically**” un-mute each group of sounds in turn. Instead, un-muting of selected sound sources of a particular room depends on the direction the user is facing into the room. Clearly, claim 1, as amended, is not anticipated by this selective muting method of Schmandt. Furthermore, it would not have been obvious to modify the muting method to cyclically and automatically mute the sound sources in a room. The Schmandt room environment enables a user to select and then listen to a particular sound stream. This selection is effected by the user turning to face the position of the sound stream of interest facing the room. Because the user would be extremely annoyed if the sound source of interest were automatically and cyclically muted and un-muted, one skilled in the art would not have modified Schmandt to arrive at the combination of steps that claim 1 defines.

The Examiner has also rejected claims 2-5 and 7-10 under 35 USC 102 based on Schmandt. These claims depend on claim 1 and therefore novel at least for the reasons given above. For the same reason, these claims are non-obvious over the content of the Schmandt article.

Dependent method claims 6 and 11 have been rejected under 35 USC 103 on the basis of Schmandt, in view of Schofield (US 6,144,747) and McKeil (US 6,046,722) respectively. At least due to the dependency of these claims on claim 1, claims 6 and 11 are patentably distinguished from the cited references.

All the apparatus claims have been rejected under 35 USC 103 on the basis of Matsuo (US 5,964,400) in view of Schmandt and, in the case of claims 21 and 31, further in view of McKeil.

Matsuo discloses a three-dimensional sound processing system. The Matsuo abstract says the system “provides a listener with three-dimensional sound effects by reproducing a sound image properly positioned in a reproduced sound field”. Matsuo does not disclose storing grouping data for arranging the sound sources **in groups each comprising multiple sound sources** as now required by independent apparatus claims 12 and 22.

Matsuo also does not disclose the audibility-determining means of claim 12 or claim 22 that is:

“arranged to automatically and cyclically change the audibility of the sound sources such as to un-mute each group of sound sources in turn for a limited period with the groups other than the un-muted group being at least partially muted.”

The Examiner admits this on the bottom of page 6 of the Action and relies on Schmandt to bridge the gap. The Examiner says on page 7 of Action that the user can scan the sound sources of a group "by rotating the head listening up to four sounds simultaneously and bringing a single sound into focus (i.e. un-muted) while the other sources have less amplitude (i.e. partially-muted)". While this may be true, it is not the same as automatically and cyclically un-muting each group in turn.

The combination of Matsuo and Schmandt therefore does not result in apparatus as set out in claims 12 and 22.

The dependent apparatus are patentably distinguished from the cited references at least for the reasons given above in relation to claims 12 and 22. McKiel does not cure the foregoing defects in the combination of Matsuo and Schmandt.

Applicant calls to the attention of the Examiner the following commonly assigned related applications:

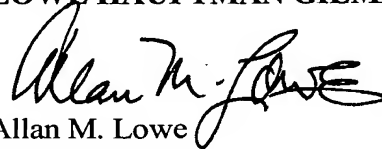
<u>Serial Number</u>	<u>Att'y Docket</u>	<u>Filing Date</u>	<u>Inventor(s)</u>
10/058,047	1509-256	Jan. 29, 2002	Belrose et al.
10/058,052	1509-258	Jan. 29, 2002	Wilcock et al.
- 10/059,102	1509-257	Jan. 29, 2002	Wilcock et al.
- 10/058,000	1509-259	Jan. 29, 2002	Wilcock
10/058,046	1509-261	Jan. 29, 2002	Wilcock
10/058,045	1509-263	Jan. 29, 2002	Hickey et al.
10/059,096	1509-264	Jan. 29, 2002	Wilcock et al.
10/058,228	1509-265	Jan. 29, 2002	Wilcock et al.
10/058,229	1509-266	Jan. 29, 2002	Hinde
10/058,197	1509-267	Jan. 29, 2002	Belrose et al.
10/057,957	1509-268	Jan. 29, 2002	Wilcock

In view of the foregoing amendments and remarks allowance is in order.

To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 07-1337 and please credit any excess fees to such deposit account.

Respectfully submitted,

**LOWE HAUPTMAN GILMAN & BERNER, LLP**



Allan M. Lowe  
Registration No. 19,641

Customer Number: 22429  
1700 Diagonal Road, Suite 300  
Alexandria, Virginia 22314  
(703) 684-1111  
(703) 518-5499 Facsimile  
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AML/gmj